UNIVERSITY EXAMINATIONS

UNIVERSITEITSEKSAMENS

UNISA university of south africa

INF3705

October/November 2019

Advanced Systems Development

Duration 2 Hours

100 Marks

EXAMINERS :
FIRST : MR E TABANE
SECOND DR L MOTSI

Closed book examination.

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This paper consists of 3 pages

INSTRUCTIONS

1 All answers must be written in the answer book provided.
1 Number your answers and label your rough work clearly.
2 The mark for each question is given next to the question
3 Marks are awarded for part of an answer, so do whatever you are able to do in each question.

GOOD LUCK!

Question 1 **[8 marks]**

Name and explain 4 software engineering fundamentals that are normally applied to all types of software systems.

Question 2 **[10 marks]**

List and explain 5 levels in the process of the maturity model.

Question 3 **[6 marks]**

Explain why agile methods may not work well in an organisation that has teams with a wide range of skills and abilities and well-established processes

Question 4 **[16 marks]**

4 1. What are the reasons, why elicitation and understanding requirements from system stakeholder are difficult process? [10 marks]

4.2 Name and explain 3 requirements validation techniques that can be used individually or in conjunction with another [6 marks]

Question 5 **[10 marks]**

Based on your experiences with the Bank ATM in general , draw an activity diagram that models the data processing involved when a customer withdraw cash from the machine

Question 6 **[10 marks]**

6.1 List and explain 4 software architecture view model. [8 marks]

6.2 List and explain 2 major components of the client-server architecture patterns. [2 marks]

Question 7 **[10 marks]**

The design or system models, as discussed in Chapter 5 of Sommerville, I. 2016. Software engineering. 10th edition/GLOBAL EDITION text book, show the objects or object classes in a system. They also show the associations and relationships between these entities. These models are the bridge between system requirement and the implementation of a system.

7.1 Outline and explain two design model which can be used when developing a design through UML. [4 marks]

7 2 List and explain 3 UML model types which are useful for adding details to use case and architecture model. [6 marks]

Question 8 **[10 marks]**

Testing is intended to show that a program does what it is intended to do and to discover program defects before it is put into use.

List and explain 5 interface testing guidelines.

Question 9 **[20 Marks]**

The specification of security requirements for systems has much in common with the specification of safety requirements.

Name and explain any 10 types of security requirements that can be included in a systems specification.